

### **REMARKS**

Applicant has now had an opportunity to carefully consider the Office Action, and respectfully submits that the subject application is now in condition for allowance based upon the amendments presented herein and the following remarks.

### **Status of Claims**

The subject application was originally filed with 19 claims. In this Amendment, Applicant has cancelled claims 1-11, 13, 15, 16, 19 without prejudice and amended claims 12, 14, and 17. Upon entry of this Amendment, claims 12, 14, 17, and 18 will be pending in the subject application.

### **Summary of Office Action**

In the Office Action dated August 22, 2007, the Examiner:

- 1) rejected claims 1, 6, 12, 15, 17, and 18 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 3,849,074 issued to Ficklinger et al. ("Ficklinger");
- 2) rejected claims 1-5 and 7-11 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,723,518 issued to Kahl et al.;
- 3) rejected claim 13 under 35 U.S.C. § 103(a) as being unpatentable over Ficklinger in view of Kahl;
- 4) rejected claims 16 and 19 under 35 U.S.C. § 103(a) as being unpatentable over Ficklinger; and
- 5) rejected claim 14 under 35 U.S.C. § 112, ¶ 2 for indefiniteness due to insufficient antecedent basis for the phrase "a second pair of orifices."

### **35 U.S.C. § 102(b) Rejection of Claims 1, 6, 12, 15, 17, 18 Based on Ficklinger**

#### **Claims 1, 6, and 15**

Applicant has cancelled claims 1, 6, and 15 without prejudice. Accordingly, the 35 U.S.C. § 103(a) rejections based on Ficklinger with respect to these claims are now moot and, therefore, should be withdrawn.

#### **Claim 12**

As discussed above, claim 12 was rejected under 35 U.S.C. § 102(b) as being anticipated by Ficklinger. For at least the following reasons, Applicant traverses this rejection.

First, Ficklinger fails to disclose or suggest a flow-through channel configured to permit a hydrodynamic liquid to flow therethrough, where the flow-through channel has an inlet, an

outlet, and a cavitation chamber situated within the flow-through channel between the inlet and the outlet, as required by amended independent claim 12. Instead, the mixing apparatus 10 in Ficklinger includes a mixing chamber 16 having two opposing orifices 30, 32, each of which is configured to form opposing fluid streams for impingement mixing thereof. Indeed, the structural arrangement in Ficklinger is not a flow-through channel.

Second, Ficklinger fails to disclose or suggest “a restriction wall in physical communication with the wall and the flow-through channel to prevent the hydrodynamic liquid from exiting the flow-through channel before entering the first and second orifices” as required by amended independent claim 12. Indeed, the mixing apparatus 10 in Ficklinger lacks such a restriction wall. Since the mixing apparatus 10 in Ficklinger includes a mixing chamber 16 having two opposing orifices 30, 32, each of which is configured to form opposing fluid streams for impingement mixing thereof, there is no need to provide such a restriction wall.

For at least the foregoing reasons, the 35 U.S.C. § 102(b) rejection to independent claim 12 is unsupported by Ficklinger and should be withdrawn.

#### Claims 17 and 18

As discussed above, claims 17 and 18 were rejected under 35 U.S.C. § 102(b) as being anticipated by Ficklinger. For at least the following reason, Applicant traverses this rejection.

Ficklinger fails to disclose or suggest the step of “creating a high shear intensity vortex contact layer when the first liquid jet interacts with and penetrates the second liquid jet, thereby creating hydrodynamic cavitation” as required by amended independent claim 17. Instead, the mixing apparatus 10 in Ficklinger is designed to mix rapidly reacting condensation monomers. Indeed, Ficklinger is silent with respect to the creation of hydrodynamic cavitation in opposing fluid streams.

For at least the foregoing reason, the 35 U.S.C. § 102(b) rejection to independent claim 17, and the claim that depends therefrom (i.e., claim 18), is unsupported by Ficklinger and should be withdrawn.

#### **35 U.S.C. § 103(a) Rejection of Claims 1-5 and 7-11 Based on Kahl**

Applicant has cancelled claims 1-5 and 7-11 without prejudice. Accordingly, the 35 U.S.C. § 103(a) rejection based on Kahl with respect to these claims is now moot and, therefore, should be withdrawn.

**35 U.S.C. § 103(a) Rejection of Claim 13 Based on Ficklinger and Kahl**

Applicant has cancelled claim 13 without prejudice. Accordingly, the 35 U.S.C. § 103(a) rejection based on Ficklinger and Kahl is now moot and, therefore, should be withdrawn.

**35 U.S.C. § 103(a) Rejection of Claims 16 and 19 Based on Ficklinger**

Applicant has cancelled claims 16 and 19 without prejudice. Accordingly, the 35 U.S.C. § 103(a) rejection based on Ficklinger with respect to these claims is now moot and, therefore, should be withdrawn.

**35 U.S.C. § 112, ¶2 Rejection of Claim 14**

Applicant has amended claim 14 to correct the antecedent basis problem. Accordingly, the 35 U.S.C. § 112, ¶2 rejection with respect to claim 14 should be withdrawn.

**Conclusion**

In view of the remarks above and the amendments presented herein, it is believed that claims 12, 14, 17, and 18 are in condition for allowance and notice to such effect is respectfully requested. If the Examiner thinks a telephone conference would expedite the prosecution of the subject application, the Examiner is invited to call the undersigned at the phone number provided below.

If additional fees are due in connection with this Amendment, the Commissioner is authorized to charge Deposit Account No. 02-2051, identifying Docket No. 24961-92.

Respectfully submitted,

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